

CLAIMS

1. A renal replacement therapy system, comprising:
 - a blood treatment device with at least one peristaltic pump mechanism;
 - a fluid circuit with respective portions to engage said at least one peristaltic pump mechanism;
 - said fluid circuit including separate engagement elements that may be brought together around said respective portions to engage said at least one peristaltic pump mechanism fluid circuit portions by a forcing a first of said engagement elements against a second of said engagement elements;
 - said fluid circuit and said blood treatment device being arranged such that multiple separate fluid flows may be maintained by an operation of said at least one peristaltic pump merely by means of said forcing, whereby an installation and set up of said fluid circuit is simplified.
2. A system according to claim 1, wherein said fluid circuit includes an extracorporeal blood circuit.
3. A system as in claim 1, wherein said fluid circuit is configured for circulating blood from an individual through the blood treatment device to remove waste and to return blood and replacement fluid to the individual after removal of waste and said respective portions include a first portion for conveying waste, a second portion for conveying blood, and a third portion for conveying replacement fluid.

4. A system as in claim 1, wherein said at least one actuator includes a peristaltic pump with a single rotating element that pumps blood through multiple ones of said respective portions, said respective portions carrying different fluids including at least blood and another fluid.

5. A system as in claim 4, wherein said at least another fluid includes replacement fluid.

6. A system as in claim 4, wherein said at least another fluid includes waste fluid.

7. A system as in claim 1, wherein said first of said engagement elements includes a filter.

8. A system as in claim 1, wherein said first of said engagement elements is permanently attached to said fluid circuit forming a sterile consumable component which is replaced after a fixed number of treatments.

9. A method of performing renal replacement therapy using a blood treatment device with at least one peristaltic pump mechanism having separate engagement elements, a fluid circuit with respective portions to engage said at least one peristaltic pump mechanism, comprising the steps of:

locating said fluid circuit respective portions between said separate engagement portions;

attaching said engagement portions together to squeeze said respective portions therebetween;

operating a pump in one of said engagement portions to convey at least blood and at least one other fluid in order to perform a therapeutic treatment.

10. A method as in claim 9, wherein said respective portions include fluid lines and said step of locating includes laying said fluid lines on a peristaltic pump.

11. A method as in claim 9, further comprising disposing of said first of said engagement elements and replacing it with another after a fixed number of treatments.

12. A method as in claim 11, wherein said fixed number is one.

13. A renal replacement therapy system, comprising:

a blood treatment machine having at least one pump and at least one pump race configured to engage tubes of a fluid circuit;

a replaceable tubing set with tubes configured to engage with said at least one pump; said at least one pump defining a single synchronous mechanical device such that said at least one pump, upon engaging with multiple ones of said tubes, said fluids are synchronously pumped through said tubes by an action of said at least one pump;

said tubes being engageable in a single step operation by placing them between said at least one pump and moving said at least one pump race toward said at least one pump.

14. A system as in claim 13, wherein said at least one pump race is connected to a filter.
15. A system as in claim 13, wherein said at least one pump race is attached to said fluid circuit.